

**METHOD AND SYSTEM FOR CONVERTING CARBONACEOUS
FEEDSTOCKS INTO ENERGY WITHOUT GREENHOUSE GAS
EMISSIONS**

5

ABSTRACT OF THE DISCLOSURE

The process and system of the invention converts carbonaceous feedstock such as coal, hydrocarbon oil, natural gas, petroleum coke, oil shale, carbonaceous-containing waste oil, carbonaceous-containing medical waste, carbonaceous-containing military waste, carbonaceous-containing industrial waste, carbonaceous-containing medical waste, carbonaceous-containing sewage sludge and municipal solid waste, carbonaceous-containing agricultural waste, carbonaceous-containing biomass, biological and biochemical waste, and mixtures thereof into electrical energy without the production of unwanted greenhouse emissions. The process and system uses a combination of a gasifier, e.g., a kiln, operating in the exit range of at least 700° to about 1600°C (1300-2900°F) to convert the carbonaceous feedstock and a greenhouse gas stream into a synthesis gas comprising mostly carbon monoxide and hydrogen without the need for expensive catalysts and or high pressure operations. One portion of the synthesis gas from the gasifier becomes electrochemically oxidized in an electricity-producing fuel cell into an exit gas comprising carbon dioxide and water. The latter is recycled back to the gasifier after a portion of water is condensed out. The second portion of the synthesis gas from the gasifier is converted into useful hydrocarbon products.